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Please find below and/or attached an Office communication concerning this application or proceeding.

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	Application No.	Applicant(s)					
	09/745,345	CHOI, MYUNG SOON					
Office Action Summary	Examiner	Art Unit					
	Joshua Kading	2661					
The MAILING DATE of this communication ap Period for Reply	ppears on the cover sheet with	the correspondence address					
A SHORTENED STATUTORY PERIOD FOR REP THE MAILING DATE OF THIS COMMUNICATION - Extensions of time may be available under the provisions of 37 CFR 1 after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a re - If NO period for reply is specified above, the maximum statutory perio Failure to reply within the set or extended period for reply will, by statu- Any reply received by the Office later than three months after the mail earned patent term adjustment. See 37 CFR 1.704(b).	I. I.136(a). In no event, however, may a rep only within the statutory minimum of thirty (d will apply and will expire SIX (6) MONTH ute, cause the application to become ABAI	ly be timely filed (30) days will be considered timely. HS from the mailing date of this communication. NDONED (35 U.S.C. § 133).					
Status							
1) Responsive to communication(s) filed on							
, <u> </u>							
closed in accordance with the practice under	closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.						
Disposition of Claims							
4) ☐ Claim(s) 1-22 is/are pending in the application 4a) Of the above claim(s) is/are withdrest is/are allowed. 5) ☐ Claim(s) is/are allowed. 6) ☐ Claim(s) 1-22 is/are rejected. 7) ☐ Claim(s) 10 is/are objected to. 8) ☐ Claim(s) are subject to restriction and the subject to restriction an	rawn from consideration.						
Application Papers							
9)⊠ The specification is objected to by the Examination 10)⊠ The drawing(s) filed on 26 December 2000 is Applicant may not request that any objection to the Replacement drawing sheet(s) including the correction 11)□ The oath or declaration is objected to by the I	s/are: a)⊠ accepted or b)□ on the drawing(s) be held in abeyance the ection is required if the drawing(s	e. See 37 CFR 1.85(a).) is objected to. See 37 CFR 1.121(d).					
Priority under 35 U.S.C. § 119							
a) ☐ All b) ☐ Some * c) ☒ None of: 1. ☒ Certified copies of the priority docume 2. ☐ Certified copies of the priority docume 3. ☐ Copies of the certified copies of the priority docume * See the attached detailed Office action for a list	nts have been received. nts have been received in Ap iority documents have been re eau (PCT Rule 17.2(a)).	plication No eceived in this National Stage					
Attachment(s) 1) Notice of References Cited (PTO-892)		mmary (PTO-413)					
Notice of Draftsperson's Patent Drawing Review (PTO-948) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/0 Paper No(s)/Mail Date	Paper No(s)/	Mail Date ormal Patent Application (PTO-152)					

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DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority based on the applications filed in The Republic of Korea on 27 December 1999 and 20 October 2000. It is noted, however, that applicant has not filed a certified copy of the 62613/1999 and 61859/2000 applications as required by 35 U.S.C. 119(b).

Specification

The disclosure is objected to because of the following informalities:

Page 4, line 16 is the first instance of the acronym "CPS". To clarify what this stands, the following should be inserted after the acronym: --(Common Part Sublayer).

Appropriate correction is required.

Claim Objections

Claim 10 is objected to because of the following informalities:

Claim 10, line 5 states, "the CID". There is no antecedent basis for this, and it should be changed to --a CID--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the limitation "a second CAM" in line 3. There is insufficient antecedent basis for this limitation in the claim. Claiming a "second CAM" suggests there is a first CAM. There is no antecedent basis for a first CAM in claim 21.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5-12, and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Östman et al. (U.S. Patent 6,483,838 B1).

Regarding claim 1, AAPA discloses "an ATM cell transmitting device of an ATM switching system comprising:

a time slot input unit for switching a plurality of time slots (figure 1, element 1);
a packet processing unit for forming a...packet by using the switched time slot
data and (figure 1, element 2; specification, page 1, lines 15-17);

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a CAM for receiving header information of the...packet and outputting an ATM buffer number (figure 1, element 8 where VPI/VCI are header information);

an ATM cell transmitting unit for storing the...packet data outputted from the packet processing unit according to the ATM buffer number outputted from the CAM, to form an ATM cell (figure 1, element 9); and

a controlling unit for performing a general controlling operation (figure 1, element 5)."

AAPA lacks the packet is a "CPS" or Common Part Sublayer packet. However, Östman discloses the packet is a "CPS" packet (figure 2 and figure 3 where figure 3 shows CPS packets being assembled into an ATM packet).

It would have been obvious to one with ordinary skill in the art at the time of invention to include the CPS packet with the rest of the ATM device for the purpose of multiplexing a plurality of users into one ATM channel (Östman, col. 2, lines 35-44). The motivation being that by multiplexing a plurality of users the overall throughput of the network is increased.

Regarding claim 5, AAPA and Östman disclose the device of claim 1. AAPA lacks "the header information of the CPS packet refers to a time slot number and a channel identifier (CID)." However, Östman further discloses "the header information of the CPS packet refers to a time slot number and a channel identifier (CID) (figure 2, where the header clearly contains a CID or channel identifier)." It would have been

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obvious to one with ordinary skill in the art at the time of invention to include the CID with the device of claim 1 for the same reasons and motivation as in claim 1.

Regarding claim 6, AAPA and Ostman disclose the device of claim 1. Ostman lacks "a time switch for switching a plurality of time slots; an input buffer unit for storing the plurality of time slot data outputted from the time switch..." However, AAPA further discloses "a time switch for switching a plurality of time slots (figure 1, element 1); an input buffer unit for storing the plurality of time slot data outputted from the time switch (figure 1, element 3)..." AAPA however, lacks "a multiplexer for selectively outputting the time slot data stored in the input to buffer unit." Although AAPA lacks the multiplexer, Östman further discloses "a multiplexer for selectively outputting the time slot data stored in the input to buffer unit (col. 2, lines 35-44 where the act of multiplexing is done by a multiplexer)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the time switch, the buffer, and the multiplexer with the device of claim 1 for the same reasons and motivation as in claim 1.

Regarding claims 7 and 12, AAPA and Östman disclose the device of claim 1. Östman lacks "a packet header storing unit for receiving a CPS packet header by time slot from the controlling unit and storing the same; and a CPS packet buffer for storing the CPS packet header outputted from the packet header storing unit and the time slot data outputted from the multiplexer, to form a CPS packet." However, AAPA discloses "a packet header storing unit for receiving a CPS packet header by time slot from the

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controlling unit and storing the same (figure 1, element 8; specification, page 3, lines 9-13); and a CPS packet buffer for storing the CPS packet header outputted from the packet header storing unit and the time slot data outputted from the multiplexer, to form a CPS packet (figure 1, element 6; specification, page 3, lines 14-16)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the packet header storing unit and the CPS packet buffer with the device of claim 1 for the same reasons and motivation as in claim 1.

Regarding claim 8, AAPA and Östman disclose the device of claim 1. Östman lacks "the CAM allocates the same ATM buffer numbers for the different time slots and CIDs." However, AAPA further discloses "the CAM allocates the same ATM buffer numbers for the different time slots and CIDs (specification, page 2, lines 22-25 and page 3, lines 1-4)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the CAM allocating buffers with the device of claim 1 for the same reasons and motivation as in claim 1.

Regarding claim 9, AAPA and Östman disclose the device of claim 1. Östman lacks "an ATM buffer unit for storing the CPS packet data outputted from the packet processing unit in a plurality of ATM buffers according to the ATM buffer number of the CAM; an ATM header generating unit for storing an ATM header; and a transmitting buffer for combining the outputs of the ATM buffer unit and 5 of the ATM header generating unit, to form an ATM cell." However, AAPA further discloses "an ATM buffer

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unit for storing the CPS packet data outputted from the packet processing unit in a plurality of ATM buffers according to the ATM buffer number of the CAM (figure 1, element 6; specification, page 3, lines 14-16); an ATM header generating unit for storing an ATM header (figure 1, element 8; specification, page 3, lines 9-13); and a transmitting buffer for combining the outputs of the ATM buffer unit and 5 of the ATM header generating unit, to form an ATM cell (figure 1, element 9)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the ATM buffer, the ATM header generating unit, and transmitting buffer with the device of claim 1 for the same reasons and motivation as in claim 1.

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Regarding claim 16, AAPA discloses "an ATM cell transmitting device of a switching system comprising:

an ATM cell receiving unit for extracting a...packet from a received ATM cell and storing it according to an ATM buffer number (figure 1, elements 1 and 2);

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a packet processing unit for converting header information of the extracted...packet and the ATM buffer number outputted from the ATM cell receiving unit into a time slot number and storing a payload of the...packet according to the converted time slot number (figure 1, element 7);

a time slot output unit for demultiplexing the payload of the CPS packet outputted from the packet processing unit to a plurality of time slots and outputting the same (figure 1, elements 1 and 2; specification, page 1, lines 15-17)."

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AAPA lacks the packet is a "CPS" packet and "... a time slot output unit for demultiplexing the payload of the CPS packet outputted from the packet processing unit to a plurality of time slots and outputting the same."

However, Östman discloses the "CPS" packet (figure 2 and figure 3 where figure 3 shows CPS packets being assembled into an ATM packet).

It would have been obvious to one with ordinary skill in the art at the time of invention to include the CPS packet with the rest of the ATM device for the purpose of multiplexing a plurality of users into one ATM channel (Östman, col. 2, lines 35-44). The motivation being that by multiplexing a plurality of users the overall throughput of the network is increased.

Regarding claim 17, AAPA and Östman disclose the device of claim 16. AAPA lacks "the header information of the CPS packet refers to a time slot number and a channel identifier (CID)." However, Östman further discloses "the header information of the CPS packet refers to a time slot number and a channel identifier (CID) (figure 2, where the header clearly contains a CID or channel identifier)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the CID with the device of claim 16 for the same reasons and motivation as in claim 16.

Regarding claim 18, AAPA and Östman disclose the device of claim 16. Östman lacks "the ATM buffer number is determined by the VPI/VCI included in the header of the ATM cell." However, AAPA further discloses "the ATM buffer number is determined

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by the VPI/VCI included in the header of the ATM cell (figure 1, the path between elements 7 and 8 shows the slot number and VPI/VCI; specification, page 1, lines 22-25 where the time slot number corresponds to the ATM buffer number)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the ATM buffer number being determined by the VPI/VCI with the device of claim 16 for the same reasons and motivation as in claim 16.

Regarding claim 19, AAPA and Östman disclose the device of claim 16. Ostman lacks "a receiving buffer for storing the ATM cell received through the ATM network; a cell segmenting unit for reading the ATM cell from the receiving buffer, extracting a CPS packet and outputting VPI/VCI information of the ATM cell header; a first CAM for outputting an ATM buffer number corresponding to the output VPI/VCI of the cell segmenting unit; and an ATM buffer unit for storing the CPS packet outputted from the cell segmenting unit according to the ATM buffer number outputted from the first CAM."

However, AAPA further discloses "a receiving buffer for storing the ATM cell received through the ATM network (figure 1, element 9; specification, page 2, lines 4-7); a cell segmenting unit for reading the ATM cell from the receiving buffer, extracting a CPS packet and outputting VPI/VCI information of the ATM cell header (figure 1, element 2; specification, page 1, lines 14-17); a first CAM for outputting an ATM buffer number corresponding to the output VPI/VCI of the cell segmenting unit (figure 1, element 8; specification, page 1, lines 22-25); and an ATM buffer unit for storing the CPS packet outputted from the cell segmenting unit according to the ATM buffer

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number outputted from the first CAM (figure 1, element 6; specification, page 2, lines 4-5)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the receiving buffer, the cell segmenter, the CAM, and another ATM buffer with the device of claim 16 for the same reasons and motivation as in claim 16.

Regarding claim 20, AAPA and Östman disclose the device of claim 19. Östman lacks "the ATM buffer unit having a small capacity of N number of ATM buffers, for outputting an ATM buffer number and the channel identifier of the CPS packet header to the packet processing unit as the CPS packet is wholly completed." However, AAPA further discloses "the ATM buffer unit having a small capacity of N number of ATM buffers, for outputting an ATM buffer number and the channel identifier of the CPS packet header to the packet processing unit as the CPS packet is wholly completed (figure 1, elements 7 and 8; specification, page 2, lines 24-25 and page 3, line 1; it should also be noted the size of the buffer is of a capacity N where N is the size of the buffer)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the buffer with the device of claim 19 for the same reasons and motivation as in claim 19.

Regarding claim 21, as it is understood at this time, AAPA and Östman disclose the device of claim 16. Östman lacks "a second CAM for outputting a time slot number corresponding to the ATM buffer number inputted from the ATM receiving unit; and a

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CPS packet buffer unit for storing the CPS packet payload outputted from the ATM receiving unit according to the time slot number outputted from the second CAM."

However, AAPA further discloses "a second CAM for outputting a time slot number corresponding to the ATM buffer number inputted from the ATM receiving unit (figure 1, element 8; specification, page 2, lines 22-25 and page 3, lines 1-4); and a CPS packet buffer unit for storing the CPS packet payload outputted from the ATM receiving unit according to the time slot number outputted from the second CAM (figure 1, element 6; specification, page 3, lines 14-16)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the CAM with the device of claim 16 for the same reasons and motivation as in claim 16.

Regarding claim 22, AAPA and Östman disclose the device of claim 16. Östman lacks "a demultiplexer for receiving the CPS packet payload from the CPS packet buffer unit and demultiplexing it to a plurality of time slots; an output buffer unit having N number of small capacity of buffers, for storing the time slot data demultiplexed by the demultiplexer; and a time switch for switching the plurality of time slots stored in the output buffer unit." However, AAPA further discloses "a demultiplexer for receiving the CPS packet payload from the CPS packet buffer unit and demultiplexing it to a plurality of time slots (figure 1, element 2; specification, page 1, lines 14-17 where by segmentation the ATM cell into a plurality of time slots is the functional equivalent of demultiplexing the packet); an output buffer unit having N number of small capacity of buffers, for storing the time slot data demultiplexed by the demultiplexer (figure 1,

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element 6; specification, page 2, lines 4-5); and a time switch for switching the plurality of time slots stored in the output buffer unit (figure 1, element 1)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the demultiplexer, buffer, and the switch with the device of claim 16 for the same reasons and motivation as in claim 16.

Claims 2-4 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Östman et al. as applied to claim 1 above (for claims 2-4 only), and further in view of Stacey et al. (U.S. Patent 6,434,154 B1).

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Regarding claim 2, AAPA and Östman disclose the device of claim 1. AAPA and Östman lack "a timer for setting an ATM cell transmitting time of the ATM cell transmitting unit." However, Stacey discloses "a timer for setting an ATM cell transmitting time of the ATM cell transmitting unit (figure 7 where the "Upstream TDMA mini-slots" are the same as having a "timer" for each ATM cell, that is to say in a TDMA stream, each cell gets a certain amount of time per cycle, i.e. each cell is timed each cycle)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the timing of each cell with the device of claim 1 for the purpose of transmitting a plurality of data from different users. The motivation being to reduce the overall packet transmission delay (Stacey, col. 3, lines 38-42).

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Regarding claim 3, AAPA, Östman, and Stacey disclose the device of claim 2.

AAPA and Östman lack "the ATM cell transmitting unit receives a CPS packet data and an ATM header for a predetermined time as set in the timer arid outputs an ATM cell."

However, Stacey further discloses "the ATM cell transmitting unit receives a CPS packet data and an ATM header for a predetermined time as set in the timer arid outputs an ATM cell (figure 7 where the "Upstream TDMA mini-slots" are the same as having a "timer" for each ATM cell, that is to say in a TDMA stream, each cell gets a certain amount of time per cycle during the transmission and receiving of data, i.e. each cell is timed each cycle)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the timing with the device of claim 2 for the same reasons and motivation as in claim 2.

Regarding claim 4, AAPA, Östman, and Stacey disclose the device of claim 3.

AAPA and Stacey lack "the ATM cell transmitting unit sets CPS packet data which is not received yet as '0' and completes an ATM cell, in case that CPS packet data is not wholly received for a predetermined time as set in the timer." However, Östman discloses "the ATM cell transmitting unit sets CPS packet data which is not received yet as '0' and completes an ATM cell, in case that CPS packet data is not wholly received for a predetermined time as set in the timer (figure 3, element 28 where padding achieves the same goal as inserting '0s' into the ATM cell, i.e. if the CPS packet is not big enough to fill the ATM cell, the ATM cell must having padding or in applicant's case '0s' used to fill the rest of the cell)." It would have been obvious to one with ordinary skill

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in the art at the time of invention to include the '0s' with the device of claim 3 for the same reasons and motivation as in claim 3.

Regarding claim 10, AAPA discloses "an ATM cell transmitting device comprising:

a time slot input unit for switching a plurality of time slots (figure 1, element 1);
a packet processing unit for receiving the switched time slot data and forming
a...packet (figure 1, element 2; specification, page 1, lines 15-17);

a CAM for outputting ATM buffer numbers for the time slot and [a] CID inputted from the packet processing unit (figure 1, element 8 where VPI/VCI are header information);

an ATM transmitting unit for storing the data of the...packet outputted from the packet processing unit according to the ATM buffer number outputted is from the CAM, to form an ATM cell (figure 1, element 9);

a controlling unit for performing a general controlling operation (figure 1, element 5)."

AAPA lacks the packets are "CPS" packets and "a timer for setting an ATM cell transmitting time of the ATM cell transmitting unit..."

However, Östman discloses the "CPS" packets (figure 2 and figure 3 where figure 3 shows CPS packets being assembled into an ATM packet) and Stacey discloses "a timer for setting an ATM cell transmitting time of the ATM cell transmitting unit (figure 7 where the "Upstream TDMA mini-slots" are the same as having a "timer"

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for each ATM cell, that is to say in a TDMA stream, each cell gets a certain amount of time per cycle, i.e. each cell is timed each cycle)..."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the CPS packets and the timer with the rest of the device for the purpose of multiplexing a plurality of users into one ATM channel (Östman, col. 2, lines 35-44). The motivation being that by multiplexing a plurality of users using a timer, the overall packet transmission delay is reduced (Stacey, col. 3, lines 38-42).

Regarding claim 11, AAPA, Östman, and Stacey disclose the device of claim 10. Östman and Stacey lack "a time switch for switching a plurality of time slots; an input buffer unit for storing the plurality of time slot data outputted from the time switch..."

However, AAPA further discloses "a time switch for switching a plurality of time slots (figure 1, element 1); an input buffer unit for storing the plurality of time slot data outputted from the time switch (figure 1, element 3)..." AAPA however, lacks "a multiplexer for selectively outputting the time slot data stored in the input to buffer unit." Although AAPA lacks the multiplexer, Östman further discloses "a multiplexer for selectively outputting the time slot data stored in the input to buffer unit (col. 2, lines 35-44 where the act of multiplexing is done by a multiplexer)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the time switch, the buffer, and the multiplexer with the device of claim 10 for the same reasons and motivation as in claim 10.

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Regarding claim 13, AAPA, Östman, and Stacey disclose the device of claim 10. Östman and Stacey lack "the CAM allocates the same ATM buffer numbers for the different time slots and CIDs." However, AAPA further discloses "the CAM allocates the same ATM buffer numbers for the different time slots and CIDs (specification, page 2, lines 22-25 and page 3, lines 1-4)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the CAM allocating buffers with the device of claim 1 for the same reasons and motivation as in claim 10.

Regarding claim 14, AAPA, Östman, and Stacey disclose the device of claim 10. AAPA and Stacey lack "the ATM cell transmitting unit sets CPS packet data which is not received yet as '0' and completes an ATM cell, in case that CPS packet data is not wholly received for a predetermined time as set in the timer." However, Östman discloses "the ATM cell transmitting unit sets CPS packet data which is not received yet as '0' and completes an ATM cell, in case that CPS packet data is not wholly received for a predetermined time as set in the timer (figure 3, element 28 where padding achieves the same goal as inserting '0s' into the ATM cell, i.e. if the CPS packet is not big enough to fill the ATM cell, the ATM cell must having padding or in applicant's case '0s' used to fill the rest of the cell)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the '0s' with the device of claim 10 for the same reasons and motivation as in claim 10.

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Regarding claim 15, AAPA, Östman, and Stacey disclose the device of claim 10. Östman and Stacey lack "an ATM buffer unit for storing the CPS packet data outputted from the packet processing unit in a plurality of ATM buffers according to the ATM buffer number of the CAM; an ATM header generating unit for storing an ATM header; and a transmitting buffer for combining the outputs of the ATM buffer unit and 5 of the ATM header generating unit, to form an ATM cell." However, AAPA further discloses "an ATM buffer unit for storing the CPS packet data outputted from the packet processing unit in a plurality of ATM buffers according to the ATM buffer number of the CAM (figure 1. element 6; specification, page 3, lines 14-16); an ATM header generating unit for storing an ATM header (figure 1, element 8; specification, page 3, lines 9-13); and a transmitting buffer for combining the outputs of the ATM buffer unit and 5 of the ATM header generating unit, to form an ATM cell (figure 1, element 9)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the ATM buffer, the ATM header generating unit, and transmitting buffer with the device of claim 10 for the same reasons and motivation as in claim 10.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mauger and Rosenberg ("QoS Guarantees for Multimedia...") discuss ATM cells with CPS cells and their use in a TDMA system. Dempo (U.S. Patent 6,594,267 B1) shows the AAL2 packet processing, including CPS packets, table lookup, and multiplexing. Song (U.S. Patent 6,621,821 B1) discloses AAL2 processing with

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table lookup and multiplexing. Takashima et al. (U.S. Patent 5,509,007) shows a plurality of channels multiplexed into one ATM cell and dummy padding.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Kading whose telephone number is (703) 305-0342. The examiner can normally be reached on M-F: 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Olms can be reached on (703) 305-4703. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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JK 20 March 5, 2004 Joshua Kading Examiner Art Unit 2661,

KENNETH VANDERPUYE PRIMARY EXAMINER